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TITLE: LINT FILTER ASSEMBLY FOR USE IN A DRYERINVENTOR: TJ Chin and Patricia FarrowDOC NO.: 15578

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BACKGROUND OF THE INVENTION

The invention relates to a clothing dryer, and more particularly, to a filter assembly for a dryer which collects lint and notifies operators when it needs to be cleaned.

Everyone who has washed laundry is familiar with a lint filter. The lint filter must be cleaned frequently to allow the dryer to dry the clothes as efficiently as possible. In addition, clothes in the dryer are not lint free unless the filter is cleaned often. Most of the time, however, lint filters are not cleaned out until they are completely filled with lint.

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United States Pat. No. 5,860,224 to Larson discloses an instrument that is placed in the position of the lint filter

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for allowing a service person to determine if an exhaust vent
is blocked. United States Pat. No. 5,097,606 to Harmelink
discloses a clothing dryer with means to signal the user to
check the filter if it has not been cleaned in the last
5 cycle. United States Pat. No. 5,709,040 to Horowitz discloses
a clothing dryer with an exhaust air sensing device capable
of counting particles.

10 While these units may be suitable for the particular
purpose employed, or for general use, they would not be as
suitable for the purposes of the present invention as
disclosed hereafter.

SUMMARY OF THE INVENTION

It is an object of the invention to produce a dryer filter that takes the guesswork out of knowing when the 5 filter needs to be cleaned. Accordingly, the invention is a filter for use in a dryer, having a control panel in communication with an alarm and a first and second air flow sensor for detecting a reduction in air flow through the sensor, and then signaling the alarm.

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It is another object of the invention to provide a dryer filter, which costs less to operate and helps to keep clothes lint free. Accordingly, the present invention allows operators to know exactly when the filter needs to be 15 cleaned, allowing the dryer to operate at optimum efficiency, and thereby costing less to operate while removing more lint from the clothing.

The invention is a filter assembly for collecting lint 20 in use with a dryer having an interior compartment. The filter assembly includes a control unit, an input air pathway in communication with the interior compartment, an exhaust, and a micro-filter. The input air pathway carries air and lint from the interior compartment through the micro-filter 25 into the exhaust. The filter assembly includes a first and second air flow sensor in the interior compartment for determining the change of air flow between the input air

pathway and exhaust. The control unit is in communication with the first and second air flow sensors and an alarm. The control unit triggers the alarm when the air flow sensors detect a restricted pattern of air flow, thereby signaling a 5 build-up of lint in the filter.

To the accomplishment of the above and related objects the invention may be embodied in the form illustrated in the accompanying drawings. Attention is called to the fact, 10 however, that the drawings are illustrative only. Variations are contemplated as being part of the invention, limited only by the scope of the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, like elements are depicted by like reference numerals. The drawings are briefly described as 5 follows.

FIG 1 is a front elevational view of a dryer with the filter assembly of the present invention having a micro-filter for collecting lint and a first and second air flow 10 sensor for detecting air flow through the micro-filter; and

FIG 2 is a block diagram of the filter, having a control unit in communication with the first and second air flow sensors for triggering an alarm and a power control unit when 15 air flow is substantially reduced.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG 1 illustrates a dryer 10, having an interior compartment 12, an exhaust 13, and a filter assembly 11. The 5 interior compartment 12 is the portion of the dryer 10 where clothes are contained while drying. The filter assembly 11 has an input air pathway 14 for carrying air and lint from the interior compartment 12 into the filter assembly 11. The input air pathway 14 is generally a plurality of openings 10 adjacent the interior compartment 12. A first air flow sensor 16 is located within the input air pathway 14 and is used to determine an intake pattern of air flow. Air and lint travel from the interior compartment 12 of the dryer 10 through the input air pathway 14, through a micro-filter 18, and into the 15 exhaust 13. The micro-filter 18 catches the lint and holds the lint therein until an operator is able to clean it out. An operator cleans out the lint by hand, by removing the micro-filter 18 from the interior compartment 12, and gathering and disposing of the lint thereon.

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A second air flow sensor 20 is located adjacent to the micro-filter 18, and adjacent to the exhaust 13. The second air flow sensor 20 is used to determine the air flow after traveling through the micro-filter 18 and is used to detect 25 any change in the air flow between the first air flow sensor 16 in the input air pathway 14, and itself at the exhaust 13. When the interior compartment 12 and micro-filter 18 fill

with lint, the flow of air through the micro-filter and out the exhaust 13 will decrease from the flow detected in the input air pathway 14 just prior to entering the interior compartment 12. The second air flow sensor 20 is used to make 5 this determination of decreased air flow, thereby signaling an increase in lint in the interior compartment 12.

FIG 2 illustrates a block diagram of the filter assembly 11 of the dryer 10, including the first and second air flow sensors 16 and 20, which are used to detect the air flow from the input air pathway 14 and into the exhaust 13. The first and second air flow sensors 16 and 20 are in communication with a control unit 22. The control unit 22 is in further communication with an alarm 24 and a power control unit 26. 10 The control unit 22 determines when the first and second air flow sensors 16 and 20 indicate when the air flow detected falls below a predetermined amount, or when the difference in air flow is greater than a predetermined amount. At this time the control unit 22 triggers the alarm 24, which activates an 15 audible and visible signal. The signal is used to notify an operator that the filter assembly 11 is filled with too much lint that the dryer 10 is no longer operating at optimum efficiency, and needs to be cleaned. This allows the operator to clean the filter assembly 11 as often as necessary so that 20 the dryer is always working at its optimum efficiency, thereby saving money and producing enhanced lint free 25 clothing. In addition, the control unit 22 may also trigger

the power control unit 26 that can disable the dryer 10 when air flow is severely restricted.

In conclusion, herein is presented a lint filter
5 assembly for use in a dryer. The invention is illustrated by example in the drawing figures, and throughout the written description. It should be understood that numerous variations are possible, while adhering to the inventive concept. Such variations are contemplated as being a part of
10 the present invention.